Gradient of Population-Stock Management

Gross immigration, net immigration, active re-emigration, and total or near-total re-emigration

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This paper proposes a conceptual gradient for distinguishing between the management of migration flows and the deliberate reduction of the accumulated immigrant population stock. The model separates immigrant inflows, voluntary return, and departures induced by active re-emigration policies. These variables first yield net immigration and then the final balance of the immigrant population. The aim is to provide a continuous scale of policy intensity, ranging from passive openness to total or near-total re-emigration.

1. Concept and scope

The framework may be described as a Migration Intensity Model, a Scale of Demographic Intervention, or, more precisely, a Gradient of Population-Stock Management. Its central feature is the distinction between policies acting on flows and policies acting on the accumulated stock.

The model does not count the emigration of nationals. The departures considered are only those of immigrants: either voluntary returns or departures induced by active re-emigration policies.

2. Key variables and formal model

Four basic magnitudes are distinguished:

- **E =** Immigrant inflows (gross immigration).
- **R =** Voluntary returns by immigrants, not induced by an active policy.
- **A =** Departures caused or induced by active re-emigration policies.
- **S =** Accumulated stock of the immigrant population.

Net immigration = Gross immigration - Voluntary return

Final balance = Net immigration - Active re-emigration

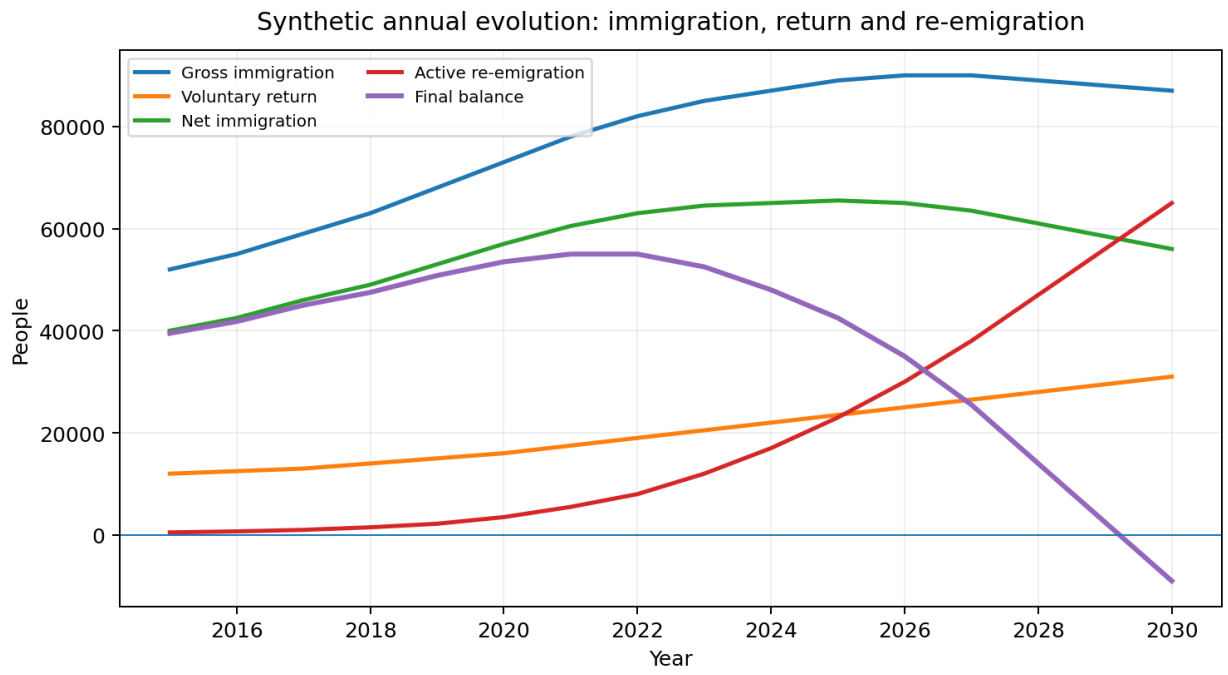
Final balance = Gross immigration - Voluntary return - Active re-emigration

3. Distinguishing self-adjustment from active re-emigration

The model separates two phenomena that are often conflated: system self-adjustment through voluntary return and political intervention generating additional departures. This distinction makes it possible to estimate what share of the adjustment occurs spontaneously and what share is attributable to active policy.

- How much voluntary return occurs without intervention?
- When does the final balance move from positive to zero or negative?
- How much active re-emigration is required to reduce the accumulated stock?

4. Synthetic graphical model



Invented data for illustrative purposes only. The chart represents immigrant inflows and immigrant departures only; it excludes the emigration of nationals.

5. Intensity gradient

Level 1 - Gross immigration / passive openness

Inflows predominate and corrective intervention is minimal. The stock increases when inflows exceed voluntary departures.

Level 2 - Controlled net immigration

Filters, requirements or quotas are introduced to modulate the flow. The balance may remain positive, but policy seeks to regulate its magnitude.

Level 3 - Migration rebalancing

Inflows, voluntary returns and induced departures tend to produce a balance close to zero. The objective is to stabilize the stock.

Level 4 - Re-emigration / induced negative balance

Active policies generate enough additional departures for the final balance to become negative. The stock begins to decline.

Level 5 - Total or near-total re-emigration

The objective is no longer merely to obtain a negative balance, but to reduce the accumulated stock on a sustained basis to a residual level. A threshold such as 10% of the reference stock may be used as an illustrative operational criterion for near-total re-emigration; it is neither necessary nor universal.

6. Simulated reading by phases

2015-2020: initial phase

Voluntary returns are relatively low and active re-emigration is almost absent. The final balance is clearly positive and the stock grows.

2021-2025: intermediate phase

Voluntary returns rise and active policies become more significant. Growth of the stock slows.

2026-2030: advanced phase

Active re-emigration intensifies until the final balance approaches zero and then turns negative. From that point onward, the accumulated stock begins to decline.

7. Abstract form of the model

- Flow: the relationship between immigrant inflows and immigrant departures.
- Stock: the immigrant population accumulated at a given point in time.
- Intensity of public intervention: the degree to which departures are spontaneous or policy-induced.

Level	Objective	Policy type
1	Allow / maximize inflows	Passive
2	Regulate the flow	Selective
3	Balance	Homeostatic
4	Reduce the stock	Corrective
5	Reduce it to a residual level	Transformative

8. Analogous classifications

The gradient has formal analogies in other fields. These are structural comparisons, not material equivalences between people and objects or species.

Ecological population management

Migration	Analogy
Free entry	Absence of control
Control	Population management
Equilibrium	Carrying capacity
Reduction	Intensive control

Migration	Analogy
Elimination	Eradication

Trade policy

Migration	Analogy
Free entry	Free trade
Regulation	Tariffs or quotas
Equilibrium	Neutral trade balance
Reduction	Protectionism
Elimination	Autarky

Strategic demography

Migration	Analogy
Free entry	Population growth
Regulation	Demographic policy
Equilibrium	Stabilization
Reduction	Population decline
Elimination	Extreme demographic transformation

9. Core insight and final observation

Migration policy need not be analysed as a binary alternative between immigration and no immigration. It can be represented as a continuum of flow and stock management. The transition between levels 3, 4 and 5 is not only quantitative but also qualitative, because policy moves from modulating inflows and outflows to deliberately acting on a population already present.